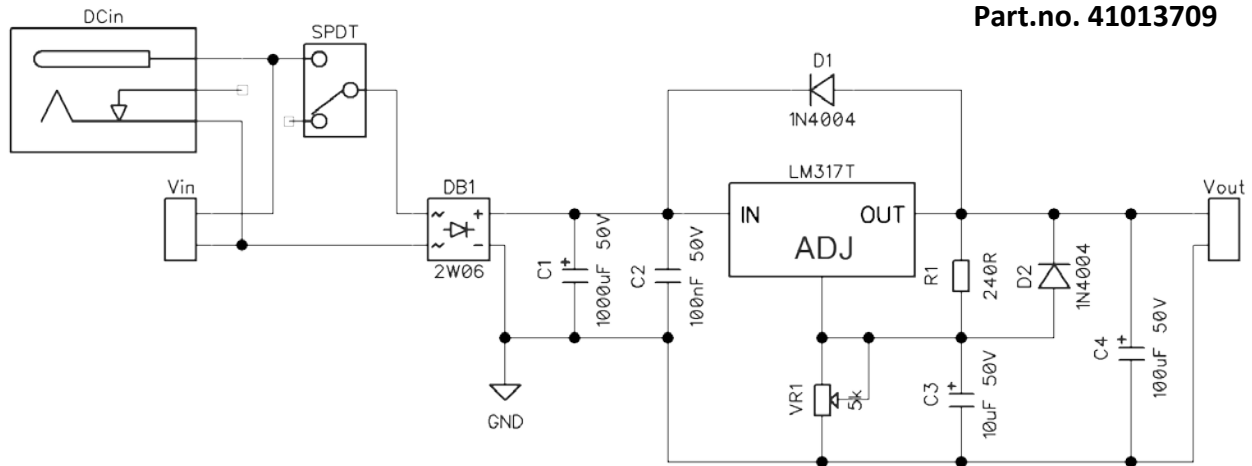


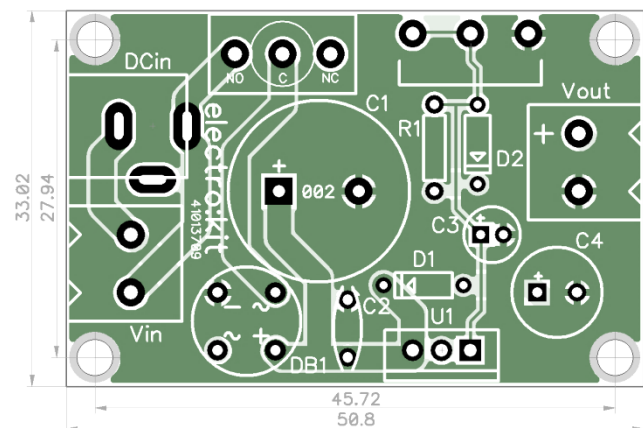
Variable power supply LM317T 1.25 – 30V

Part.no. 41013709



Component list:

Designator:	Value:	Qty:
DCin	DC jack 2.1mm PCB	1
Vin, Vout	Screw terminal 2p 5mm	2
DB1	Diode bridge 2A 2W06	1
C1	El.lyt 1000µF 50V	1
C2	Ceramic 100nF 50V	1
C3	El.lyt 10µF 50V	1
C4	El.lyt 100µF 50V	1
D1, D2	Diode 1N4004 400V 1A	2
VR1	Potentiometer 5kohm	1
R1	Resistor 240ohm 1%	1
LM317T	Voltage regulator	1



Assembly instructions:

Start with the smallest components and finish with the largest. By following this order, you will have better access to the solder pads.

- Start by placing the diodes (D1, D2) and the resistor (R1), observe that the diodes must be placed in the correct direction.
- If an external power switch is to be used, connect this to the holes marked NO and C. If no switch is used, NO and C must be jumpered. You can use a cut off component leg as a jumper.
- Continue with the diode bridge (DB1), the capacitors (C1 – C4) and the potentiometer (VR1). The electrolytic capacitors (C1, C3 and C4) must be placed in the correct direction. The ceramic capacitor (C2) can be placed either way.
- Finish with the voltage regulator (LM317T) and the connectors. Use either the screw terminal or the DC jack for Vin, but not both at the same time

A heatsink for the regulator is included and must be used if the current draw is high or the difference between Vin and Vout is greater than approx. 5V. Please note that the regulator's tab is internally connected to Vout and must not be short-circuited!

The input voltage can be either AC or DC and must be at least 2V higher than the desired output voltage.

Circuit description:

This is a regulated power supply, based around the linear voltage regulator LM317. The supply voltage can be either AC or DC as the diode bridge rectifies the voltage and makes sure that only positive voltage is presented on the + terminal. A 1000µF capacitor is next in line. Its function is to provide a slight filtering to the rectified voltage before it enters the regulator. The circuit comprised of VR1 and R1 makes up a voltage reference for the regulator, which sets the output according to the formula $V_{OUT} = 1.25 (1 + R2/R1)$. With the supplied values of VR1 and R1, the voltage can be set from 1.25V to about 30V. The values of VR1 and R1 can be changed if a different range is required. The diodes D1 and D2 protect the regulator from back EMF, eg. from a motor or a relay coil. The capacitors C2, C3 and C4 are all filters for reducing the ripple voltage to a minimum.